What is claimed is

1. A miniaturized, easily replaceable, plug compatible thermal management package sealed in at least one insulating envelope comprising

a) at least one air inlet;

b) at least one fuel inlet;

c) a plurality of connectors to receive and supply electric power;

d) an exhaust outlet

and, optionally

e) a counter-flow heat exchanger; and

f) an ignitable catalytic combustor;

combined with a second plurality of connectors which are plugged into a mating socket to supply and accept both electrical power and gas flow.

2. The thermal management package of claim 1 wherein the plug-compatible thermal management system is a solid oxide fuel cell and wherein recovery of thermal energy is by means of a counterflow heat exchanger, efficient thermal insulation, combustion of residue fuel, cell design with a minimal conductive heat loss to the surroundings.

3. The thermal management package of claim 2 wherein heat loss is minimized by at least one thermal insulation barrier selected from the group consisting of a vacuum multi-foil insulation envelope, an evacuated fibrous aerogel insulation and gas-filled fibrous ceramic insulation enveloped in hermetic packaging.

4. The thermal management package of claim 2 wherein the amount of power generated by the small-scale solid oxide fuel cell ranges from about 10 milliwatts to about 10 watts.

5. The thermal management package of claim 2 wherein the fuel entering the fuel inlet is selected from the group consisting of hydrogen, ammonia, methanol, ethanol,

a reformate mixture and one or more low molecular weight hydrocarbons.

6. The thermal management package of claim 1 wherein the insulated envelope is constructed from a material selected from the group consisting of quartz, glass and metals with compatible thermal expansion properties including ferritic steel and nickel-based super-alloys.

7. The thermal management package of claim 1 wherein the package is a high temperature combustion system that generates heat by burning in a catalytic combustor which is ignited by a heater coil for combustion igniter, resulting in the production of heat.

8. The thermal management package of claim 1 wherein the package is a moderate to high temperature chemical reactor which generates at least one product of a chemical reaction.

9. An easily replaceable, inexpensive solid oxide fuel cell energy module comprising at least one envelope constructed from a material that is hermetic and selected from the group consisting of quartz, glass, and metals with compatible thermal expansion properties including ferritic steel and nickel-based super-alloys.

10. The energy module of claim 9 which further comprises at least one air inlet, at least one fuel inlet, a plurality of connectors to receive and supply electric power, an ignitable catalytic combustor, a means to ignite the combustor, a counter-flow heat exchanger, an exhaust outlet and a plurality of connectors which are plugged into a mating socket to supply and accept power and gas flow

11. The energy module of claim 9 wherein at least one solid oxide fuel cell is enclosed in a gas-tight envelope with a connector plug for facile replacement when spent.

12. The energy module of claim 9 wherein the gas-tight envelope further encloses an insulating member to reduce heat loss from the SOFC.

13. The energy module of claim 12 wherein the insulating member is a high-performance, high-temperature insulation that is selected from the group consisting of Aerogel, vacuum multifoil insulation, and low density fibrous ceramic insulation.

14. The energy module of claim 9 which is miniaturized and ranges in size from about 0.1 to about 10 inches.

15. The energy module of claim 9 wherein the connector plugs are arranged so that fuel, air, and exhaust are vented in to and out of the module at near-ambient temperature.

16. A method of supplying electric power to small portable electronic devices with a small-scale solid oxide fuel cell unit comprising

a) packing a hermetic envelope with insulation;

b) inserting a solid oxide fuel cell mating connector in the envelope;

c) sealing the envelope containing the solid oxide fuel cell for high temperature service;

d) evacuating the envelope;

e) inserting a connector module into the mating connector;

f) supplying air and fuel to the solid oxide fuel cell unit through the connector;

g) powering an igniter present on a catalytic combustor;

resulting in generating power to operate an electronic device

17..The method of claim 16 wherein the amount of power generated by the small-scale solid oxide fuel cell ranges from about 10 milliwatts to about 10 watts.

18. The method of claim 16 wherein the evacuated envelope is constructed from a material selected from the group consisting of quartz, glass and metals with

compatible thermal expansion properties.

19. The method of claim 16 wherein the solid oxide fuel cell provides an inexpensive, replaceable, and plug-compatible means to supply power to a relatively small electronic devices selected from the group consisting of personal computers, PDAs, cellular telephones, and portable global positioning systems.

20. The method of claim 16 wherein the fuel used in the solid oxide fuel cell is selected from the group consisting of hydrogen, ammonia, methanol, ethanol, and one or more low molecular weight hydrocarbons.